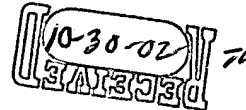011317.412

which receives at least one antenna signal modulated with M-ary modulation,

said method comprising the steps of:

pre-computing values equal to a product of a complex number and a

hypothesized symbol value;

storing said pre-computed values in a product look-up table;

adding select pre-computed values from said product look-up table to

produce a result; and

determining said branch metric using said result.


4. (Twice Amended) In a receiver, a filter in a nonlinear maximum-

likelihood-sequence-estimation equalizer, which demodulates at least one received

radio signal modulated with M-ary modulation, for producing a hypothesized

received signal sample to be used for determining a branch metric, said filter

comprising:

a memory for storing a product look-up table having pre-computed

values equal to a product of a channel tap estimate and a hypothesized

symbol value for different iterations; and

an adder for adding select entries from the product look-up table to produce a

hypothesized received sample signal.


13. (Twice Amended) In a receiver, a method for computing a branch metric

in a multi-channel nonlinear maximum likelihood-sequence-estimation (MLSE)

equalizer which demodulates M-ary modulated signals, said method comprising the steps of:

pre-computing a plurality of possible values for each channel in said multi-channel MLSE to be used in the branch metric computation;

storing said plurality of possible values for each channel in separate product look-up tables; adding select values from said separate product look-up tables; and

computing said branch metric using said added select values.


## REMARKS

Claims 1, 4, and 13 have been amended to further clarify the fact that the invention is based in an RF receiver and that the MLSE is applied to the equalization portion of the receiver as opposed to MLSE decoding. Support for the claim amendment "In a receiver" can be found in FIGURE 1 as well as p. 8, lns. 1-11. Support for the claim amendment "nonlinear" can be found in equation 6, at p. 9, ln. 6, and at pg. 10, lns. 1-11. Moreover, it is well known in the art that MLSE, when used in an equalization context, is a nonlinear equalization technique. Lastly, support for the claim amendment "hypothesized" can be found at pg. 10, lns. 21-28.

In the previous office action, the Examiner stated in the *"Response To Arguments"* section that "[A]pplicant's assertions that branch metrics in Kumar are not applied to a receiver and an MLSE equalizer are incorrect." This is a clear misinterpretation of Kumar on the part of the Examiner. The Examiner cited